

Background Paper on HOT Lanes and the VA Beltway

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Executive Summary

The Virginia Department of Transportation (VDOT) is considering ways to reduce congestion on the Capital Beltway in Virginia between the Potomac River and I-395. In a Draft Environmental Impact Statement issued in May 2002, the proposed build alternatives include three high-occupancy vehicle (HOV) system alternatives and one alternative that would upgrade and improve several interchanges along the corridor.¹ Since that time, VDOT has received an alternative proposal from Fluor Daniel, a private engineering and construction company, under Virginia's Public-Private Transportation Act (PPTA). Fluor Daniel proposes to construct four high-occupancy/toll (HOT) lanes on the Beltway.

HOT lanes are a relatively new concept, first proposed in 1993 by the Reason Institute and currently operating in four locations in California and Texas. HOT lanes function the same as HOV lanes, with one important difference: HOT lanes allow single occupant vehicles (SOV) to utilize, for a fee, the lanes typically reserved for HOVs. Emergency vehicles, transit vehicles, and HOVs are allowed to enter for free or at a discounted rate. To keep the HOT lanes from becoming congested, the access fee varies depending on demand.

This paper briefly describes the HOT lane concept, explains some of the advantages and disadvantages of the concept, and gives an overview of the Fluor Daniel proposal.

Introduction

There is little doubt that congestion on the Capital Beltway in Virginia has become so bad as to degrade quality of life for motorists, negatively effect air and water quality, and result in many millions of wasted hours as commuters and other motorists spend ever more time getting to their destinations. The question remains as to what should be done.

As there are essentially two ways to reduce congestion, there are essentially two sides to the debate about solutions for the Beltway. Congestion results when demand for a particular roadway is higher than the capacity of the roadway to efficiently carry traffic. One way to reduce congestion is to increase capacity, which means adding more lanes. Despite a long list of associated problems with this solution, it is often trumpeted as the only way that congestion on the Beltway will be solved.

However, another method for reducing congestion is to decrease demand. This can be accomplished by giving motorists alternatives to using the automobile—including mass transit and safe pedestrian and bicycle facilities—and encouraging higher-density residential development near jobs and mass transit.

Decreasing demand may also be accomplished through pricing mechanisms. Congestion pricing, which has been successfully employed in London, is designed to reduce congestion by reducing

¹ see Department of Transportation and Federal Highway Administration. "Draft Environmental Impact Statement Section 4(f) Evaluation." March 2002.

demand during times of the day when it is highest by charging a premium to use a particular roadway. Congestion pricing typically charges all road users and the price of access varies depending on the time of day.

A second pricing mechanism is value pricing, which charges users who choose to access a particular, exclusive portion of an otherwise free facility, but does not charge all roadway users. HOT lanes employ such a concept.

HOT Lanes

HOT lanes are a modification of high-occupancy vehicle (HOV) lanes.² HOV lanes, operating on many highways and roads across the US, allow vehicles carrying a minimum number of passengers (usually 2 or 3) to access an exclusive travel lane, which tends to be relatively free of traffic and therefore allows for faster movement and shorter travel times. HOV lanes are an attempt to offer commuters and other travelers an incentive to carpool or use public transportation. The functionality and efficiency of the HOV lane system has been challenged, however, and a decrease in the percentage of carpooling to work in the U.S.—from 16% in the 1980s to 9% today—illustrates problems with the HOV concept. Many HOV lanes carry fewer vehicles than they were designed for, and the HOT lane concept attempts to utilize the unused HOV lane capacity.

HOT lanes allow SOVs to access, for a price, the HOV lane system. HOVs, emergency vehicles, and transit vehicles may enter free of charge or at a discounted rate. Tolls are collected using Electronic Toll Collection (ETC) or similar technology. HOT lanes employ the concept of value pricing, which offers an alternative to drivers who are willing to pay a fee to avoid highway congestion. This is different than congestion pricing, which charges all drivers who use a highway or road a fluctuating toll based on the level of congestion or time of day. Congestion pricing is designed to eliminate congestion or spread it out so that people choose to travel when demand is lower.

Freeway lanes are designed to carry 1,500 to 1,800 vehicles per hour to achieve the greatest balance between capacity and freedom of movement. An HOV lane operating below this figure has extra capacity, which can be sold. To be effective, however, HOT lanes must maintain a smoother flow and faster speeds than the non-express lanes, or there will be no incentive to pay to use them. The number of automobiles that access the HOT lanes must remain below the 1,500 to 1,800 vehicles per hour threshold, so HOT lane tolls are variable. When there is maximum demand—during rush-hour peaks—the higher price discourages many people from using the lanes; when demand is lowest, the price is lowest.

HOT lanes are currently under study, proposed, approved or operating in 22 cities and regions across the United States. HOT lanes are operating in Orange County, CA (SR 91), San Diego, CA (I-15), and Harris County, TX (Katy Freeway and US-290). The "SR 91 Express Lanes," located in Orange County, are similar to the facility proposed for the Capital Beltway. A private consortium financed, built and operated³ a four-lane, 10-mile HOT facility, constructed parallel to the existing highway. Access tolls vary from \$0.75 to \$4.75, and are withdrawn from a

² For an extensive overview of HOT lanes and their potential applicability, refer to the FHWA document, "A Guide for HOT Lane Development." Available online: http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13668.html.

³ The Orange County Transportation Authority purchased the lanes in January 2003.

Capital Beltway Proposal

The Capital Beltway is a 64-mile circumferential highway that carries traffic around Washington, DC, and is located in both Virginia and Maryland. Completed in 1964, the Beltway now carries almost 11 percent of all daily trips made in the region, and carries more traffic than any other road in Virginia. The Virginia Department of Transportation (VDOT) is presently proposing improvements on a 14-mile portion of the Beltway in Virginia, from the Potomac River to Interstate 395. A Draft Environmental Impact Statement (DEIS), released in March 2002, outlines a number of reasons such improvements are needed, including: "to alleviate safety and operational concerns, provide road design features consistent with current standards, add capacity for congestion relief, enhance transportation system linkage, and fulfill goals of local and regional plans."²⁵

The DEIS released by VDOT proposes three primary build alternatives for this portion of the Capital Beltway, all of which primarily consider High Occupancy Vehicle (HOV) lanes, and all of which include adding additional lanes to the existing eight-lane corridor. The Concurrent HOV alternative would add one HOV lane in each direction; the Express/Local with HOV alternative would add one HOV lane in each direction, and would reconfigure the Beltway to accommodate long and short trips, by giving drivers the alternative to use local lanes or express lanes, which will be barrier separated; the Barrier-Separated HOV alternative would add two barrier-separated HOV lanes in each direction, bringing the total width of the Beltway to 12 lanes.

The Fluor Daniel Proposal for the Beltway

Fluor Daniel, an international engineering, procurement, and construction company, has submitted a proposal²⁶ to the Virginia Department of Transportation (VDOT) under the Public-Private Transportation Act (PPTA) of 1995.²⁷ As stated by Fluor Daniel, "The overall goal of this proposal is to widen the 8-lane Capital Beltway by 4 new lanes for approximately 14 miles from the American Legion Bridge to the Springfield Interchange at I-395." The new lanes will be HOT lanes, which would be accessible at the beginning and end of the lanes themselves, and at five intermediate access/egress points along the length of the corridor. Qualifying carpools, buses, and emergency vehicles would be given free access to the lanes.

Fluor Daniel recently opened the Pocahontas Parkway (Route 895) in Richmond²⁸, the first project built under the PPTA. The Parkway, which connects Interstate 95 to I-295 south of Richmond, has carried far less than the projected number of vehicles, and has fallen well short of revenue estimates. Over 20,000 vehicles per day were expected to pay the toll, but during the six month period, from February 3 to August 3, it carried an average of only 12,500 vehicles per day. In late 2002, Fluor Daniel was placed on a "ratings watch negative" status by Fitch Ratings, one of three major bond ratings agencies. This indicates to investors that "putting money in the

²⁵ Ibid, pp. 1-1.

²⁶ see <http://www.virginiadot.org/business/ppta-default.asp>.

²⁷ For legislative text, see <http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+TOC560000000220000000000000>. For PPTA guidelines, see <http://www.virginiadot.org/business/resources/PPTA-overview.pdf>.

²⁸ see <http://www.virginiadot.org/business/resources/PPTA-overview.pdf>.

as an example of HOT lanes paying for transit. The San Diego program is much different than what is being proposed on the Beltway, however. A public agency completed that project with federal dollars, and it was a conversion of HOV lanes to HOT lanes, which is much less expensive than constructing new lanes. The result was significantly more funds available for transit than should be expected on the Beltway project.

Furthermore, it is unclear how buses would access HOT lanes, or how riders would access the bus. If only three locations will have an on/off ramp directly to the HOT lanes, buses will otherwise be forced to cross four congested lanes of traffic to get to the HOT lanes, making express bus service impractical. It is also unclear where the stops would be located, and if they are adjacent to the Beltway, how they would be accessed.

• **Corporate Welfare?**—For good reason, HOT lanes are favored by design, engineering, and construction firms that are in the road building business. In a discussion about HOT lanes held at George Mason University on DATE, Rick Volk, Vice President of Koch Performance Roads, acknowledge that reduced government revenues available for road projects has resulted in less work for firms such as his. He sees HOT lanes as an opportunity to raise the funds necessary to build new roads and expand existing roads.

The problem is what the private companies may want in exchange for building HOT lanes. Expect private corporations to ask for one or more of the following:

- Tax-exempt financing (ie. free money to build a product from which they will derive profit)
- Credit enhancement from state and local governments—This is required so more bonds can be sold at a better interest rate than the private company could accomplish on its own. This takes away from the government's ability to raise funds for other projects, and increases its financial liability should the project fail.
- Government condemnation—A private party cannot condemn another private parties property and take it for their own, but the government is allowed to force an owner to sell if it serves the public good, so long as it provides adequate compensation. If the government does this in the favor of a private company, even it is deemed to be in the public interest, this is a questionable use of the condemnation power.
- Third-party liability—Governments are protected in the level liability they can be forced to pay if they are sued, and private companies would like to be extended the same protection when they are doing a project in association with a government agency.

The Virginia Public Private Transportation Act (PPTA) contains provisions that make just such actions possible for the benefit of the private facilities owner or operator. For example, the PPTA allows a public entity to convey a property interest to the private operator if it is determined that so doing will satisfy the public interest.²² In addition, the PPTA allows a public agency to enter into grant or loan agreement with the private entity responsible for acquisition, construction, improvement, maintenance and/or operation of a transportation facility.²³ Finally, the PPTA contains provisions that allow a public entity, at the request of the private operator, to exercise its power of condemnation for the use by the private entity in a transportation project, and stipulates that any such condemnation proceeding must be paid for by the private operator.²⁴

²² Code of Virginia, §56-564.

²³ Code of Virginia, §56-566(C) and §56-566(D).

²⁴ Code of Virginia, §56-569.

case in Orange County, California. When the State approved the OCTA to purchase the lanes from the private owner, it stipulated that any tolls must be removed once the bond issue is repaid. Under such a plan, HOT lanes are nothing more than a funding mechanism for highway expansion, and not an opportunity to offer transportation choice on the nation's highways.

- **Non-Express Conditions**—HOT lane proponents claim that installation of HOT lanes improves driving conditions for everyone, whether they pay to use the express lanes or drive for free in the non-express lanes. HOT lanes, it is argued, will draw cars out of the non-express lanes, thereby reducing their level of congestion. The problem is that new highway capacity brings more traffic. Edward Sullivan, a researcher at Cal Poly, analyzed data from the SR 91 Express Lanes in Orange County, and found that total traffic increased by 32,600 cars (14%) in the first year of operation of the HOT lanes. Much of this increase (60%) is attributed to induced traffic. The express lanes did not absorb all of this increase, so more cars were using the non-express lanes.¹⁹

Sullivan also found that despite the massive increase in traffic on SR 91, there was a reduction in the amount of time drivers were stuck in traffic. This benefit did not last for very long, however. One way to consider whether HOT lanes benefit non-express drivers is by looking at the time saved by using the express lanes. In June 1997, an eastbound driver using the SR 91 Express Lanes at 5:00 p.m. saved approximately 12 minutes; in June 1998 that same driver saved 18 minutes, and in June 1999 saved nearly 30 minutes.²⁰ This clearly illustrates a worsening of conditions in the non-express lanes. While the HOT lanes are priced to keep traffic moving, the non-express lanes will quickly face increasing congestion. In the years following the construction of the SR 91 Express Lanes in Orange County, CA, the commute on the non-express lanes deteriorated into one of the worst in the state.

- **Equity**—One of the most frequent criticisms of HOT lanes is that they are "Lexus Lanes," reserved for upper income individuals who can afford to access them. Proponents counter with the argument that even those at lower income levels occasionally have a need to get somewhere more quickly, and that at times it is economically beneficial for them to pay to use the HOT lanes. And although it is true that less than 50% of SR 91 Express Lane riders use them 2 or more times each week, there has also been a drop of 15% in the number of people that earn \$40,000-\$60,000 per year.²¹

As highway traffic increases over time, so will the demand for the HOT lanes. To keep the traffic flowing smoothly, HOT lanes must become more exclusive, which means charging more. In Orange County, the access toll for the SR 91 Express Lanes increased four times in the first few years after they opened, and the provision allowing HOVs to ride free was eliminated in the eastbound lanes between 4-6 pm, and they now pay 50% of the published fare.

- **Do HOT Lanes Help Transit?**—HOT lanes are often touted as a transit-friendly solution to highway congestion. The faster moving lanes make express bus service possible, and the toll revenue will provide the funding. Proponents frequently use the San Diego HOT lanes program

¹⁹ see <http://ceenve.calpoly.edu/sullivan/sr91/> for links to both of the reports produced by Edward Sullivan.

²⁰ Edward Sullivan, "Continuation Study to Evaluate the Impacts of the SR 91 Value-Priced Express Lanes Final Report," December 2000, pp. 47-48. Available online:

<http://ceenve.calpoly.edu/sullivan/SR91/final_rpt/FinalRep2000.pdf>

²¹ *Ibid.*, pp. 86.

Route 28 interchanges, which is currently underway; and host of projects that are proposed or presently under negotiation.¹⁷

Concerns with HOT Lanes

There are many questions surrounding the effectiveness and operability of HOT lanes. The following are some important concerns that must be addressed before any decision is made about HOT lanes on the Beltway.

- **More Capacity is No Cure**—HOT lanes do not require that new highway lanes be constructed, as HOV or existing highway lanes can be converted for use as HOT lanes. Virginia's Public Private Transportation Act (PPTA) does not allow for such conversions, however, and stipulates that tolls and user charges may only be imposed if roadway capacity is increased as the result of a particular project.

The Beltway proposal would result in construction of four new lanes. More highway capacity results in more driving and encourages people to live farther from their workplace, which creates sprawl. In addition, studies have shown that simply adding more lanes does not solve congestion, because the new lanes fill up with traffic as more people switch to driving or change their typical driving route. Research by the Surface Transportation Policy Project (STPP) indicates that in areas in the US that have constructed the most roads have only been marginally more successful at slowing congestion growth.

In addition, STPP has developed a measure called the "Congestion Burden Index" (CBI) that attempts to quantify "the combined effect of congestion and the degree to which people are exposed to it." In other words, if an area is highly congested but there are opportunities to avoid the congestion (busses or trains, for example), then that area will rank better on the CBI than areas that are congested but offer commuters little choice other than to drive. Although the metropolitan Washington, DC area ranks fourth in terms of overall congestion, it ranks only 31st according to the CBI, largely because nearly 500,000 commuters do not drive to work, which represents greater than 23 percent of the workforce. An increase in the number of non-automobile options represents, in a very real way, a decrease in the overall effect of congestion on commuters. Although STPP does not analyze specific corridors in a given region or area, it is safe to assume that the CBI in the Beltway corridor, which lacks rail and bus service, will be much higher than in other areas of the metro-Washington area that have rail and bus service. The solution, then, is not more highway capacity but more transportation options.¹⁸

- **HOT Lanes Do Not Represent Choice**—While it is true that HOT lanes offer drivers the option to travel in less congested lanes, they do not offer them the opportunity not to drive at all. Real transportation choice is enhanced when travelers may choose between a variety of modes. HOT lanes may provide funding and means for enhanced transit service, but this is far from a guarantee (see sections below). Another important consideration in this regard is that HOT lanes can be converted to general purpose lanes in the future. Once the tolls on the HOT lanes have paid the bond issued to pay for the project, the tolls may be discontinued. This is currently the

¹⁷ The Virginia Department of Transportation maintains an extensive website about the PPTA and projects under this legislation: <<http://www.virginiadot.org/business/ppta-default.asp>>

¹⁸ see "Easing the Burden: A Companion Analysis of the Texas Transportation Institute's Congestion Study," May 2001. Available online: <<http://www.transact.org/report.asp?id=185>>

Virginia's Public Private Transportation Act

A public-private partnership is generally a contractual agreement between a public agency (federal, state, or local) and a private, for-profit corporation, with the purpose of delivering a service or facility for use by the general public. In addition to sharing resources, the public agency and the private corporation also share in the potential risks and rewards of delivery of the service or facility. Such agreements are used in a variety of areas, including wastewater treatment, transportation, urban development, and delivery of social services.

There are deep philosophical differences between those who support public-private partnerships and those opposed to the concept. Supporters highlight the ability of private corporations to provide the public with a high level of service in a cost-effective manner. Opponents fear that the public will not be well served by ceding control of projects to private corporations; there will be less project accountability, and private entities will sacrifice project quality to maximize profit.⁸

In 1995, the Virginia legislature passed the Public-Private Transportation Act (PPTA)⁹, which enables the Commonwealth of Virginia, qualifying local governments, and other political entities to enter into agreements with private parties to "acquire, construct, improve, maintain, and/or operate qualifying transportation facilities."¹⁰ The intent of this legislation is to fulfill the public need for improved transportation facilities in a more timely and cost efficient manner,¹¹ and to facilitate the pooling and funding mechanisms of the Intermodal Surface Transportation Efficiency Act, the federal transportation funding legislation.¹² The PPTA contains provisions for both solicited¹³ and unsolicited¹⁴ private proposals, and spells out the conditions under which a project may serve the necessary public purpose, including filling a transportation need, compatibility with state transportation plan and local comprehensive plans, an estimated cost that is reasonable in relation to similar facilities, and timely construction.¹⁵

If a private entity is chosen to deliver a transportation facility under the PPTA, the legislation also requires that a detailed comprehensive agreement be signed between the responsible public agency and the private entity. This includes work agreements, user fees, loan agreements, the duties of the facility operator, and, if user fees are to be charged, how excess earnings will be distributed to State and local governments.¹⁶

There are currently a number of projects at various stages under the PPTA. These include the Pocahontas Parkway in Richmond, which was completed in September 2002; improvements to

⁸ see "Critical Choices: The Debate Over Public-Private Partnerships and What it Means for America's Future," White Paper, National Council for Public Private Partnerships. Available online: <<http://ncppp.org/presskit/2003/whitepaper.pdf>>

⁹ Code of Virginia, §§56-556 to 56-575. Available online: <<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+TOC560000000220000000000000>>

¹⁰ Public Private Transportation Act Guidelines, page 1, April 2001. Available online: <<http://www.virginiadot.org/business/resources/PPTA-overview.pdf>>

¹¹ Code of Virginia, §56-558(A).

¹² Code of Virginia, §56-558(C).

¹³ Code of Virginia, §56-560(A).

¹⁴ Code of Virginia, §56-560(B).

¹⁵ Code of Virginia, §56-560(C).

¹⁶ Code of Virginia, §56-566.

prepaid account by a transponder when a vehicle enters the HOT lanes facility; HOV2+ vehicles receive a 50% discount.

Gordon Fielding and Daniel Klein, writing for the Reason Institute, first proposed HOT lanes in 1993. They propose that HOT lanes are more efficient than HOV lanes and generate revenue for new projects, but for Fielding and Klein, the greatest advantage of HOT lanes is that they introduce the public to the idea of pay-for-service on the nation's highways. Fielding and Klein propose that charging for highway access is the only efficient method of relieving congestion, which is only possible if official and public opinion toward pricing changes. They view HOT lanes as a way to achieve wider acceptance for highway pricing, and their ultimate aim is to eventually convert all highways to toll roads.⁴

Robert Poole and Kenneth Orski, also writing for the Reason Public Policy Institute, cite four specific advantages of HOT Lanes:

1. By maximizing the utility of HOV lanes, installation of HOT lanes reduces pressure to decommission the HOV lanes.
2. They reduce congestion in the non-HOT lanes
3. They generate revenue that can be used for other transportation projects
4. They offer a "premium travel option" to solo drivers⁵

In 2003, Poole and Orski introduced a new concept that they call HOT networks, which is a combination of the HOT lanes concept with Bus Rapid Transit (BRT), a special, high-frequency bus service that runs on dedicated lanes. HOT networks would provide the faster moving lanes for BRT (HOT lanes), but would also allow other vehicles (HOVs and paying SOVs) to access those lanes. The HOT lanes would either be converted HOV lanes that are underutilized, or new lanes built specifically as HOT lanes. Poole and Orski envision such a system in eight metropolitan areas (Los Angeles, San Francisco, Washington, DC, Seattle, Houston, Dallas, Atlanta, and Miami), and believe that much of the cost could be funded by bonds issued on the revenue from the tolls. In the Washington area, they propose that all existing HOV lanes (on I-95 South, I-66, I-270, Dulles Toll Road, and US 50) be converted to HOT lanes and new HOT lanes constructed on the entire Capital Beltway, on I-95 North to Columbia, and on MD 210 and US 1.⁶

Environmental Defense (ED), a non-profit environmental group, also supports HOT lanes on the Beltway, and has supported previous projects as well (including the SR 91 Express Lanes). ED cites faster congestion relief (ie. private companies will get the job done faster than the public entities can); greater incentives to rideshare; revenue generation, which can be used for transit services; greater access to suburban jobs for low-income individuals; increased speeds in adjacent lanes; and more efficient use of the transportation system as the important advantages of HOT lanes.⁷

⁴ "High Occupancy/Toll Lanes: Phasing in Congestion Pricing a Lane at a Time," Reason Public Policy Institute Report Number 170, November 1993. Available online: <http://www.rppi.org/transportation/ps170.html>.

⁵ "Building a case for HOT lanes: a new approach to reducing urban highway congestion," Reason Public Policy Institute Report Number 257. Available online: <http://www.rppi.org/257.html>.

⁶ "HOT Networks: A New Plan for Congestion Relief and Better Transit," Reason Public Policy Institute Number 305, February 2003. Available online: <http://www.rppi.org/ps305.pdf>.

⁷ see <http://www.environmentaldefense.org>.

project may carry a greater risk on returns.²⁹ In addition, Fitch rated the bonds for the project at BBB-minus, just above junk-bond status.

This also underscores the financial risks the state may face when it approves such projects. If a private company defaults on its responsibilities because of lower than projected income, the State may be forced to take control of the facility. Philip Shucet, Commissioner of VDOT, has acknowledged these concerns and suggested that financial plans for such projects be open to the public.³⁰ Presently, this information is unavailable in the Fluor Daniel's proposal for the Beltway.

Conclusion

The most fundamental problem with the current proposal for HOT lanes on the Beltway is that it would result in additional roadway capacity, which would mean more cars on the road, more driving, dirtier air, and a host of other problems. In addition, too many questions exist regarding Fluor Daniels' proposal. Instead of exploring ways to add capacity to the Beltway, VDOT and the Commonwealth Transportation Board should include a transit and land-use alternative in the Beltway EIS.

A full and complete analysis of the Beltway proposal is needed, and time allowed for a thorough public debate. Some elected officials in Northern Virginia are ready to rush ahead with a Beltway HOT lanes project,³¹ but the public has not yet had the opportunity to learn about HOT lanes or consider their advantages and disadvantages. To this point, much of the discussion about HOT lanes in the media has been short on details, but long on support for the concept.

Existing HOT Lane projects:

State Route 91 (SR 91) Express Lanes - Orange County, California

The SR 91 Express Lanes are a 10-mile, four lane, HOT facility that were newly constructed parallel to the existing highway. Toll rates on the Express Lanes vary from \$0.75 to \$4.75 by time of day and day of the week, and have increased four times since the new lanes opened in 1995. In addition, HOV3+ vehicles, initially granted free access to the lanes, must now pay a discounted portion of the toll. Customers must have a prepaid account and transponder to use the Express Lanes. The SR 91 Express Lane project was awarded on a concession basis to a private consortium, which financed, built, and operated the new lanes, using project revenues to repay its debt and derive profit. In April 2002 plans were put into place to sell the facility to the Orange County Transportation Authority (OCTA).

I-15 FasTrak - San Diego, California

The I-15 FasTrak involved the conversion of an underutilized preexisting eight-mile 2-lane HOV facility to a peak-period reversible HOT. The I-15 FasTrak program allows single occupancy vehicles to pay a toll ranging from \$0.50 to \$4.00 to use the HOT lanes normally reserved for vehicles with two or more occupants. Customers must have a FasTrak account and transponder to use the HOT lanes. HOV2+ vehicles may use the facility at no cost. The project is sponsored by the San Diego Association of Governments (SANDAG), the local metropolitan planning organization (MPO), which has earmarked a significant portion of the revenues derived from the HOT lane to fund transit improvements in the I-15 corridor.

²⁹ "Risks Cited on Bonds for Parkway: Traffic Levels on Pocahontas Below Forecast." Richmond Times Dispatch, November 11, 2002.

³⁰ "Toll Road Could Prompt Changes: VDOT Learning from Route 895," Richmond Times-Dispatch, November 20, 2002.

³¹ "Time to fast-track HOT lanes on Beltway." Northern Virginia Journal, August 27, 2003.

Katy Freeway QuickRide – Harris County, Texas

Katy HOV lane is a 13-mile, barrier-separated, reversible HOV lane located in the freeway median. This facility was initially operated at HOV2, but heavy use and increasing lane congestion resulted in its conversion to HOV3+. This change, however, resulted in excess capacity on the facility during the peak periods. As a result, the QuickRide program was introduced, allowing 2-passenger vehicles to access the facility during peak periods for a \$2.00 per trip toll, while HOV3+ vehicles continued to use the facility at no cost. Customers must have a QuickRide account, transponder, and windshield tag to use the facility.

Northwest Freeway (U.S. 290) QuickRide – Harris County, Texas

The Northwest Freeway connects the northwest suburb of Houston with downtown, and has had a one-lane, barrier-separated, 15.5 mile, reversible HOV facility in its median since 1988. In November 2000 the Northwest Freeway HOV lane was converted to a HOT lane, and is operated in a manner similar to the Katy Freeway. The Northwest QuickRide allows paying two-plus carpools to use the lane only in the morning peak when three-plus occupancy requirements are in effect. From 6:45AM to 8:00AM, when the facility serves inbound traffic, three-plus occupant vehicle may use the lane for free, but two-plus vehicles must pay \$2.00 to use the lane. HOV3+ vehicles may use the facility at no cost, while single-occupant vehicles are never allowed on the QuickRide lane.

Synopsis of HOT Lane projects:

	Orange County	San Diego	Katy	US 290
Length	10 miles	8 miles	13 miles	15.5 miles
Number of lanes	4	2, reversible	1, reversible	1, reversible
Type of facility	new, median	HOV	HOV	HOV
Cost Range	\$0.75-\$4.75	\$0.50-\$4.00	\$2.00 for HOV2	\$2.00 for HOV2
HOV Concessions	50% off for HOV2+	Free for HOV2+	Free for HOV3+	Free for HOV3+
Public/Private	Initially private	Public	Public	Public

Selected websites:

<http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentid=A63250-2003Jan15¬found=true> (WP Article)

<http://www.91expresslanes.com/learnaboutus.asp?r=m7> (SR 91 Website)

<http://ceens.ea/pols.edu/sullivan/sr91/> (Edward Sullivan's research regarding SR 91 Express Lanes in Orange County, CA)

http://www.itstdocs.fhwa.dot.gov/JPODOCS/REPTS_TL_13668.html (FHWA "A Guide for HOT Lane Development")

<http://www.rppi.org/357.html> & <http://www.rppi.org/transportation/rs170.html> (Reason Public Policy Institute)

<http://afsh.hq2.seattletimes.nwsource.com/cgi-bin/idx.cgi?web/otext/display?slay=tells11n&date=20020831> (Seattle Times Article)

http://argo.sandag.org/asttrak/pdfs/vr3_01r_qualtr.pdf (Air quality study from San Diego HOT lanes)